U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT **Assistant Secretary for Housing-Federal Housing Commissioner** **TO: DIRECTORS, HOUSING DIVISION** **DIRECTORS, MULTIFAMILY DIVISION** **DIRECTORS, SINGLE FAMILY DIVISION**	**Series and Series Number:** (Supersedes issue dated November 2, 1993) **MATERIALS RELEASE NO.** 1062e **ISSUE DATE:** September 28, 1998 **REVIEW DATE:** September 28, 2001

SUBJECT: **1. Product** YTONG AG (ALC) Precision Blocks and Thin-Joint Wall System

2. Name and Address of Manufacturer
YTONG Florida, Ltd.
1930 Lars Sjoborg Blvd.
Haines City, FL 33844

USE: Masonry Bearing and Non-bearing Walls for Exterior and Interior.

DESCRIPTION:

YTONG AG (ALC) Precision Block is an autoclaved, aerated concrete block made of silicious materials such as sand, sandstone, quartzite or fly ash, and calcic materials, lime and cement. These materials combine into calcium silicate hydrates similar to hardened concrete.

The complete wall system consists of YTONG AG blocks and YTONG thin-joint mortar. The thin-joint mortar is a proprietary mix supplied in dry ready-mixed form containing fine sand and/or crushed marble, cement, lime, and plasticizing and water retaining additives.

ENGINEERING DATA:

1. Precision Block

Length -	24" (600 mm)
Height -	8" (200 mm)
Thicknesses -	4" (100 mm)
	6" (150 mm)
	8" (200 mm)
	10" (250 mm)
	12" (300 mm)
	14" (350 mm)

Tolerance shall be ± 1/16" (1 mm) for all dimensions.

Quality Class	Density pcf(kg/m³)	Compressive Strength (f'm)* psi (MPa)	Thermal Conductivity Btu x in / ft² x hr x°F (W) (mK)
400	25.0 (400)	240 (1.7)	0.604 (0.087
500	31.2 (500)	470 (3.2)	0.881 (0.127

2. Thin-Joint Mortar

Mortar joints are approximately 1/8" (3 mm) thick. The compressive strength** of mortar at 28 days shall be 1000 psi (6.9 MPa) when tested in accordance with ASTM C 109, Test Method for Compressive Strength of Hydraulic Cement Mortars.

ANALYSIS AND DESIGN:

All structures shall be analyzed and designed by a licensed professional engineer to resist the minimum design loads of ASCE 7-88. Except as modified herein, design and construction of the masonry wall shall comply with the YTONG AG Specification, CEB Manual of Autoclaved Aerated Concrete Design and Technology, dated 1978, relevant portions of ACI Standard Building Code Requirements for Masonry Structures and the HUD Minimum Property Standards.

*Conducted in accordance with ASTM E-447, Method B, Test Methods for Compressive Strength of Masonry Prisms.

**Test data available from the manufacturer on request.

The following is recommended for designs:

	Quality Class	
	400	500
Nominal Dry Density, pcf (kg/m)	25 (400)	31.2 (500)
Shear, psi (MPa)	8 (0.055)	11 (0.076)
Bearing, psi (MPa)	60 (0.41)	108 (0.75)
Modulus of Elasticity, psi (MPa)	150,000(1033)	250,000(1723)

Exterior walls shall have a minimum thickness of 6". Conventional stucco or other acceptable exterior cladding shall be provided. Interior loadbearing walls shall be 6" minimum thick and non-loadbearing walls shall be 4" minimum thick. Interior surfaces shall be coated with conventional plaster or other acceptable interior wall finish. Walls built in Seismic Zones 2 and 3 shall be built with Quality Class 500 Blocks only. For this application, precautions must be taken to allow for the drying of the wall. This can be achieved in two ways, either by applying immpermeable protection on the outside below ground level, in which case the drying takes place toward the inside, or by applying a non-capillary, air-permeable cover on the outside below ground level (e.g. mineral wool mat). In the latter case, the drying takes place through both sides of the basement wall. Walls below ground level must be designed to resist soil pressure and shall be protected against moisture as recommended by YTONG AG. Supports of walls subject to soil pressure shall not be further than 20' (6m) apart.

To accommodate normal contraction and expansion due to temperature and moisture in buildings, vertical stress-relieving joints in interior walls shall be approximately 20' (6m) on centers.

The slenderness ratio of a loadbearing wall shall be taken as the ratio of its effective height to actual thickness and shall not exceed 18.

IDENTIFICATION AND LABELING:

YTONG AG shall certify that the YTONG Precision Blocks and Thin-Joint Mortar Mix conform to requirements of this Materials Release (MR). The Official Building Materials Testing Institute of the Technical University in Braunschweig shall validate the manufacturer's certification that Precision Blocks and Thin-Joint Mortar Mix meet the requirements of this MR. Test reports shall be made available for inspection by HUD upon request.

Each pallet certified as conforming to this MR shall be labeled "YTONG PLANBLOCK 400" or YTONG PLANBLOCK 500". Blocks shall be marked with red color indicating Quality Class 400 or yellow color indicating Quality Class 500.

INSPECTION:

HUD Field Office personnel or the Consulting Engineer will make field compliance inspections to inspect each structural system covered by this MR. A copy of the field inspection report and supplemental supporting information shall be sent to HUD Headquarters, Office of Consumer and Regulatory Affairs, Manufactured Housing and Standards Division, when there is evidence of noncompliance with any portion of this MR or if the system does not appear to give satisfactory performance.

CERTIFICATION AND WARRANTY:

The complete wall system covered by this MR shall be built by a company (the "Contractor") whose personnel have been trained by YTONG AG or by a duly authorized licensee of YTONG who has manufactured the product. YTONG AG or the licensee shall furnish the Contractor with a certificate which states that the Contractor is qualified to perform the work under this MR.

Installation of the complete wall system shall be in accordance with the CEB Manual of Design and Technology, Autoclaved Aerated Concrete, and this MR, and shall be the responsibility of the Contractor. For a period of four (4) years from the date of initial occupancy, the manufacturer shall warrant to the owner that the special structural building system covered by this MR shall be free of defects which materially affect the structural integrity and weather resistance of the constructed property. A copy of the warranty shall be given to the owner.

MANUFACTURER'S RESPONSIBILITIES:

Issuance of this MR commits the manufacturer to fulfill, as a minimum, the following:

1. Produce, label and certify the material, product or system in strict accordance with the terms of this MR.

2. Provide necessary corrective action in a timely manner for all cases of justified complaint, poor performance or failure reported by HUD.

3. When requested, provide the Office of Consumer and Regulatory Affairs, Manufactured Housing and Standards Division, HUD Headquarters, with a representative list of properties, in which the material, product or system has been used, including complete addresses or descriptions of locations and dates of installation.

4. Inform HUD in advance of changes in production facilities, methods, design of the product, company name, ownership or mailing address.

EVALUATION:

This MR shall be valid for a period of three years from the date of initial issuance or most recent renewal or revision, whichever is later. The holder of this MR shall apply for a renewal or revision 90 days prior to the Review Date printed on this MR. Submittals for renewal or revision shall be sent to HUD Headquarters. Appropriate User Fee shall be sent to:

U.S. Department of Housing and Urban Development
Technical Suitability of Products Fees
P.O. Box 954199
St. Louis, MO 63195-4199

The holder of this MR may apply for revision at any time prior to the Review Date. Minor revisions may be in the form of a supplement to the MR.

If the Department determines that a proposed renewal or supplement constitutes a revision, the appropriate User Fee for a revision will need to be submitted in accordance with Code of Federal Regulations 24 CFR 200.934, "User Fee System for the Technical Suitability of Products Program," and current User Fee Schedule.

CANCELLATION:

Failure to apply for a renewal or revision shall constitute a basis for cancellation of this MR. HUD will notify the manufacturer that the MR may be canceled when:

1) conditions under which the documents was issued have changed so as to affect production of, or to compromise the integrity of the accepted material, product or system,

2) the manufacturer has changed its organizational form without notifying HUD, or

3) the manufacturer has not complied with responsibilities it assumed as a condition of HUD's acceptance.

However, before cancellation, HUD will give the manufacturer a written notice, of the specific reasons for cancellation, and the opportunity to present views on why the MR should not be canceled. No refund of fees will be made on a canceled document.

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This Materials Release is issued solely for the captioned firm, and is not transferable to any person or successor entity.
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